

THE EFFORTS TO IMPROVE CREATIVITY LEARNING MATHEMATICS BY USING METHOD OF GUIDED DISCOVERY IN SEVENTH GRADE STUDENTS OF SMP NEGERI 3 SENTOLO KULON PROGO

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ABSTRACT

In research aims to understand an increase in creativity learn math to their students class vii the first half odd SMP Negeri 3 Sentolo in the academic year of 2016 / 2017. This research uses a method of guided discovery. The subject at this research is a student VII B SMP Negeri 3 Sentolo Kabupaten Kulon Progo in the academic year of 2016 / 2017 which consisted of 16 students' son and 14 students' daughter. Technique data collection it will be a method of observation, interview, documentation, and tests the discussion. Obtained the average the percentage creativity to study for students from the results of sheets of observation in cycle I of 29,79 % in the less. Cycle II increased by 61.71% in both categories and the average percentage of classical and exhaustiveness of test results of 46.667%. Cycle III increased by 79.21% in both categories and the average percentage of classical and exhaustiveness of test results of 80.000%. According to the interviews students and teachers showed a positive response from students and teachers.

Keywords: Creativity learned mathematics students, Method of guided discovery.

INTRODUCTION

Education is basically a conscious effort to grow and develop the potential of the human resources of students by encouraging and facilitating their learning activities. Learning is a change of one's self to the environment around him. Learning also plays an important role in maintaining the lives of a group of human beings (nations) amidst intense competition among other nations that advance first because of learning. In an era that is as sophisticated and modern as it is today when computers dominate all aspects of life, all humans are required to be creative. And able to adapt to life changes very quickly. In this case, education is needed to create reliable and creative generations. To respond to the reality that occurs, education must be changed. From the beginning, only "teach a lot" to "encourage a lot of children to learn". From what was originally at school, it was only oriented to solving problems, becoming oriented to developing mindset. Therefore, educators must be able to create a comfortable learning atmosphere.

In the world of education, mathematics has more time allocation than other subjects. Because mathematics is a fundamental science. But in reality, mathematics is still often considered to be less interesting, difficult, boring and difficult to understand, so mathematics lessons are less liked by students. From the results of interviews in April 2016, in learning teachers still apply conventional mathematics learning when learning takes place so that there are still students who do not understand the material presented, even students are not brave or embarrassed to ask the teacher, if students are given math problems there are still many students which must be guided in working on or solving the problem with the help of the teacher. At the time of learning takes place the teacher also does not apply a variety of learning methods so that the learning process only goes monotonous and makes students become discouraged from learning and decreased creativity in students. To overcome students' discomfort with mathematics, it is necessary to improve both the energy of educators and students. If educators are able to increase student interest in learning mathematics it is expected that difficulties can be overcome. Then we will need a creative and professional educator who is able to use his abilities and abilities in using teaching approaches, teaching tools and able to bring about changes in his students.

Mathematics is one branch of science that underlies the development of science and technology, so it has an important role in human life. The importance of the role of mathematics

requires the mastery of mathematics from an early age. Therefore, mathematics is a subject that is given at every level of education from primary education, secondary education to higher education.

According to Munandar, Utami (2014: 19) Creativity is a lifestyle, a way of perceiving the world. Creative life means developing talents, learning to use one's own abilities optimally, exploring new ideas, new places, new activities, developing sensitivity to environmental problems, other people's problems, humanitarian problems. Many people assume that creativity is only taught if it is associated with a particular subject area (subject). This is not true. Creativity can be taught in contexts that are "content-free", separate from certain material fields, or can be attached to content or specific subject areas. The purpose of this study was to determine an increase in creativity in learning mathematics for VII grade students of SMP Negeri 3 Sentolo, Kulon Progo Regency in the 2016/2017 school year.

METHODS

This type of research is a classroom action research (Classroom Action Research). According to Arikunto, Suharsimi (2010: 130) classroom action research is an examination of activities that are deliberately raised, and occur in a class. The action is given by the teacher or by the teacher's direction by the student. The most important characteristic of research is that the research is an attempt to solve the problem, as well as seek scientific support. Classroom action research is planned to consist of 3 cycles.

The method used in this study is the guided discovery method. According to Sund in Hamdani (2010: 267), the guided discovery method is a mental process to encourage students to be able to assimilate a process or principles. The guided discovery method is a mental process to encourage students to be able to assimilate a process or principles. Discovery is a process, a way/way of approaching problems rather than a product or certain knowledge items (Jerome Bruner in Davis Cooney in Markaban, 2006: 9). According to Richard in Roestiyah (2008: 20) guided discovery is a way of teaching that involves students in the process of mental activity through brainstorming, with discussions, seminars, reading by themselves and trying it for themselves, so that children can learn on their own.

This guided discovery method students are faced with situations where students are free to investigate and draw conclusions. In the method of learning with guided discovery, the role of students is quite large because learning is no longer centered on the teacher but on the student. The teacher starts the teaching and learning activities by explaining the activities the students will be doing and organizing the class for activities such as problem-solving, investigations or other activities.

In order for the implementation of this guided discovery method to run effectively, several steps that need to be taken by mathematics teachers according to Markaban (2006: 16) are as follows:

1. Formulate the problem that will be given to students with sufficient data, the formulation must be clear, avoid statements that cause misinterpretation so that the direction students take is not wrong.
2. From the data provided by the teacher, students organize, process, organize, and analyze the data. In this case, teacher guidance can be given as far as is needed. This guidance should direct students to step in the direction they want to go, through questions, or worksheets.
3. Students construct conjectures (forecasts) from the results of the analysis they do.
4. If deemed necessary, the conjecture that the student has made above is checked by the teacher. This is important to be done to ensure the truth of students' forecasts so that they will be going in the direction they want to achieve.
5. If certainty has been obtained about the truth of the conjecture, then the verbalization of the conjecture should also be left to the students to arrange it.
6. After students find what they are looking for, the teacher should provide practice questions or additional questions to check whether the findings are true.

This study uses four data collection techniques as follows:

1. Observation Method

Observation is used to collect data with planned procedures, in addition to knowing how far the implementation of the ongoing actions can be expected to produce the desired changes.

2. Interview Method

Interviews are used to collect data. From the results of interviews with mathematics subject teachers about learning in the classroom, for example, student creativity in learning mathematics, the learning model used.

3. Documentation

Documents used to collect data in the form of a list of student names, a list of midterm tests (UTS) students, analysis of student creativity observation sheets, and lesson plans (RPP). Meanwhile, to provide an overview of the learning activities that take place photo documentation is held.

4. Test Description

According to Arikunto, Suharsimi (2010: 193) said the test was a series of questions or exercises and other tools used to measure skills, knowledge of intelligence, abilities or talents possessed by individuals or groups. This description test will be given to students at the end of each cycle.

Data collected in the form of interviews, observations, and learning outcomes tests to determine the implementation and obstacles that occur during learning.

1. Analysis of Student Creativity Data

Student creativity data to be analyzed using the formula (Aries, Erna February & Haryono, Ari Dwi: 2012: 95):

$$P = \frac{\sum \text{score achieved}}{\sum \text{maximum score}} \times 100\%$$

Information :

P = percentage of success

Qualifications of the results of the percentage of students' creativity observation sheet scores are divided into 5 criteria: very good, good, sufficient, less and very less. The following criteria guidelines by percentage score:

Table 1. Qualification Results Percentage Score of Student Creativity Observation

Percentage of Response	Criteria
$80\% < P \leq 100\%$	Very good
$60\% < P \leq 80\%$	Well
$40\% < P \leq 60\%$	Enough
$20\% < P \leq 40\%$	Less
$0\% < P \leq 20\%$	Very less

(Riduwan, 2015: 15)

2. Interview data

Data from interviews with teachers and students were analyzed descriptively so that data obtained about the strengths and weaknesses in the learning provided and find out the increase in student creativity in learning mathematics

3. Analysis of Final Cycle Test Results

4. For the analysis of the learning outcomes test the learning completeness criteria is used by referring to the minimum completeness criteria (KKM) for mathematics subjects set by the school as follows:

a. Individual completeness

Individual students are considered complete learning if the student reaches a minimum score of 75. The Minimum Completion Criteria (KKM) for mathematics subjects at Sentolo Middle School in the 2016/2017 school year is 75.

b. Classical or Class Completeness

It says complete learning classically or classically if there are at least 70% of students who have finished learning. Classical completeness (class) in learning using formulas (Aqib, Zainal, et al: 2009: 204):

$$P = \frac{\sum \text{students who have finished learning}}{\sum \text{student}} \times 100\%$$

Information:

P = percentage of classical completeness

Then to calculate the average value can be calculated by the following formula:

$$i = \frac{\sum X}{\sum N}$$

Information:

i = average value

X = the sum of all student grades

N = number of students

5. Triangulation

Triangulation is a way of looking at problems/objects evaluated from various points of view. It can be seen from many methods or many data sources.

RESULTS AND DISCUSSION

The results of the observation sheet on the creativity of students in curiosity seen in the first cycle of 64.16% increased to 83.33% in the second cycle and in the third cycle to 83.74%. The average student feels challenged by pluralism with the guided discovery method. This can be seen in the first cycle of 50.00%, increasing to 88.33% in the second cycle and in the third cycle to 89.99%. The average interaction between students also increases because this learning model requires students to have the nature to take risks, students dare to move forward even though the answer is not correct. This can be seen in the first cycle of 8.33%, increasing to 25.83% in the second cycle and in the third cycle to 75.83%. When learning takes place, when students present their results and other students pay attention, the nature of mutual respect can be seen in the first cycle of 71.67%, increased to 85.00% in the second cycle and in the third cycle increased to 97.91%.

The average student learning creativity of each individual also increases because this learning method requires students to be more creative in learning, this can be seen from their thinking skills that are smoothly seen in the first cycle of 36.67%, increasing to 59.58% in the cycle II and in the third cycle to 76.66%. And the average student can solve problems on the problem independently including inflexible thinking skills during learning, this can be seen in the first cycle of 7.50%, increased to 44.17% in the second cycle and in the third cycle to 71, 25%.

And students provide new ways to solve a problem in problem solving and students are able to think this original look at the first cycle of 0%, increased to 26.67% in the second cycle and in the third cycle to 55.83%. And students can solve problems by taking detailed steps according to their abilities and knowledge, it can be seen from the first cycle of 0%, increased to 80.83% in the second cycle and in the third cycle increased to 82.50%. While the average observation of students' learning creativity in the first cycle of 29.79% increased to 61.71% in the second cycle and in the third cycle to 79.21%. From the overall data above, the research objectives have been achieved in cycle III so that the research is considered complete and the results of the study indicate an increase in student creativity in learning

mathematics using the guided discovery method of class VII B odd semester of SMP N 3 Sentolo 2016/2017 Academic Year.

The response of students and teachers to mathematics learning using the guided discovery method is very good, it can be seen from the results of interviews with students and mathematics teachers of class VII B. Based on interviews obtained the following results:

1. Positive responses from students and teachers to the guided discovery method.
2. The guided discovery method can increase student learning creativity in the process of learning mathematics.
3. Learning mathematics using the guided discovery method can be used as a reference and input in the learning process to increase student creativity and learning outcomes of mathematics.

CONCLUSION

Based on the results of research through learning mathematics using the guided discovery method it can be concluded that there is an increase in students' creativity in learning mathematics in class VII B odd semester of SMP N 3 Sentolo in the 2016/2017 school year. Based on observational data, the average percentage of students' learning creativity in the first cycle was 29.79% with fewer criteria, the average percentage of students' learning creativity in the second cycle was 61.71% with good criteria, and the average percentage of learning creativity students in the third cycle was 79.21% with good criteria.

Student learning creativity based on the results of the interview has an outline that students are happy to use the guided discovery method and are motivated in the learning process and positive responses from the teacher.

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